The integration of BBFTP with the SAM system

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Abstract

BBFTP, the multi-stream ftp, has been used within SAM, the D0 storage management system, as a new method of data transferring.

Introduction

SAM[1] is a file based data management and access layer between the Storage Management System and the data processing layers. The goal of this system is to optimize the use of data storage and delivery resources, such as tape mounts, drive usage, and network bandwidth. SAM is the data management system that the D0 experiment[2] at Fermilab will use.

Currently SAM transfers files using the Unix rcp command. The efficiency in the transfer rate of big files can be increased by the integration of BBFTP[3] with the SAM infrastructure. BBFTP in fact is designed to quickly transfer files across a wide area network. It has been written for the BaBar experiment[4] in order to transfer big files (more than 2 Gbytes) between SLAC (California) and the In2p3 Computing Center (Lyon, France). The transfer rate improvement is achieved by making the BBFTP clients transfer data through several parallel tcp streams.

Proposal

The goal of this project is to investigate/demonstrate robust, high WAN bandwidth, file transfers using SAM as a simulation of a D0 production task. This will be achieved by transferring data between Nikhef[5] (Netherlands) and Fermilab and monitoring the transfer performance.

5 steps are proposed:

1) Setting up and configuring a SAM station on a node dedicated to the test. The node chosen is a Pentium III 500 MHz processor, 256 Mb RAM, running Linux.
2) Wrapping BBFTP in a script that mimics the rcp command, which SAM currently uses for file transfer.
3) Integrating and testing the wrapping script with SAM.
4) Conducting the actual file transfer performance test.
5) Packaging a ups/upd product of SAM which includes BBFTP as a transfer method.

An open issue is the authentication between client and server. BBFTP is not “kerberized”, but supports several authentication methods and protocols: shadow password, security password, AFS, PAM.

A final decision on how to treat authentication has not been made, yet.

Schedule

Steps 1,2,3	can be accomplished by Feb 11.
Steps 4,5	are still to be negotiated with Nikhef.

References

[1] http://d0db.fnal.gov/sam
[2] http://www-d0.fnal.gov
[3] http://ccweb.in2p3.fr/bbftp
[4] http://www.slac.stanford.edu/BFROOT/
[5] http://www.nikhef.nl